

Claims

1. Light unit for generating light beams having various wavelengths, including

- a light source unit (34),
- a mirror unit (80),
- a support unit (30),
- an exit window (50) having an opening (60), and
- a pressure-generating element (32),

the light source unit (34) and the pressure-generating element (32) being contained in the support unit (30), which exhibits a longitudinal axis (40) running substantially parallel to the generated light beams, the mirror unit (80) and the exit window (50) being arranged on opposite ends of the support unit (30), and a force being generated with the pressure-generating element (32), which force acts on the light source unit (34), characterized in that the mirror unit (80) and/or the exit window (50) are displaceable relative to the support unit (30) and/or tiltable relative to the longitudinal axis (40) by at least one displacement element (52, ..., 55) in dependence on the force generated by the pressure-generating element (32) on the light source unit (34).

2. Light unit according to Claim 1, characterized in that

a force on the light source unit (34) can be generated from a plurality of sides with the pressure-generating element (32), the force preferably acting substantially perpendicularly to the longitudinal axis (40).

3. Light unit according to Claim 1 or 2, characterized in that a force, uniform all around, can be generated on the light source unit (34) with the pressure-generating element (32).

4. Light unit according to one of the foregoing claims, characterized in that the pressure-generating element (32) is of piezoelement type, preferably based on sodium persulfate, sodium hydroxide, or copper sulfate.

5. Light unit according to Claim 4, characterized in that the piezoelement (32) is a tourmaline crystal that has an electrically conductive film, preferably a silver or aluminum film, for contacting on the sides facing toward and away from the light source unit (34).

6. Light unit according to one of Claims 1 to 5, characterized in that the exit window (50) is a semitransparent window or a Brewster window (51).

7. Light unit according to one of Claims 1 to 6, characterized in that the exit window (50) and the mirror unit (80) are displaceable in such fashion that the

light source unit (34) is always arranged centrally between the exit window (50) and the mirror unit (80).

8. Light unit according to one of the foregoing claims, characterized in that the displacement element comprises at least one piezoelement (52, ..., 56).

9. Light unit according to one of Claims 1 to 8, characterized in that there is an insulation layer (61) between the mirror unit (80) and the support unit (30) and/or between the exit window (50) and the support unit (30).

10. Light unit according to one of Claims 1 to 9, characterized in that the light source unit is a laser diode unit (34), in particular of the semiconductor laser type.

11. Method for generating light beams having various wavelengths through the use of a light unit including

- a light source unit (34),
- a mirror unit (80),
- a support unit (30),
- an exit window (50) having an opening (60), and
- a pressure-generating element (32),

the light source unit (34) and the pressure-generating element (32) being contained in the support unit (30),

which has a longitudinal axis (40) running substantially parallel to the generated light beams, the mirror unit (80) and the exit window (50) being arranged at opposite ends of the support unit (30), a force acting on the light source unit (34) being generated with the pressure-generating element (32), and the method consisting in that the mirror unit (80) and/or the exit window (50) are displaced relative to the support unit (30) and/or tilted relative to the longitudinal axis (40) by at least one displacement element (52, ..., 56) in dependence on the force generated by the pressure-generating element (32) on the light source unit (34).

12. Method according to Claim 11, characterized in that a force on the light source unit (34) is generated from a plurality of sides with the pressure-generating element (32), the force preferably acting substantially perpendicularly to the longitudinal axis (40).

13. Method according to Claim 11 or 12, characterized in that a force, uniform all around, can be generated on the light source unit (34) with the pressure-generating element (32).

14. Method according to one of Claims 11 to 13, characterized in that the exit window (50) and the mirror unit (80) are displaced in such fashion that the light source unit (34) is always arranged centrally between the

exit window (50) and the mirror unit (80).

15. Method according to one of Claims 11 to 14, characterized in that the spacing between the mirror unit (80) and the exit window (50) is set such that this distance is exactly equal to, or a multiple of, half the wavelength of interest.

[Footer on pages 1 and 6 of Drawings:]

Replacement page (Rule 26)